

less perceptible than in the ear-trumpet just described, if indeed in this latter it is even possible to perceive any difference.

One of the first medical men in this city has tried this stethoscope, and remarked the great increase of sound it conveyed; he also considered it would be most valuable for those members of the medical profession whose hearing was rather defective in detecting stethoscopic sounds.

I have not had any experience in stethoscopy, so must therefore submit this instrument to medical men to judge of its efficiency.

ART. V.—Notes on Australian Coleoptera.

By COUNT F. DE CASTELNAU.

(Read by Dr. Mueller, 12th November, 1866.)

No. 1. *Cicindelidæ*.

One of the most remarkable facts connected with the distribution of animals in Australia, is certainly the absence of the *cicindelidæ* in all the southern part of that Continent; that family of insects being otherwise spread over all the regions of the globe capable of bearing animal life. This fact is just as interesting as is the absence of ophidian reptiles in New Zealand and New Caledonia.

Little, or nearly nothing, is yet known of the entomological fauna of the northern and north western territories; but the eastern coast, which has been studied with some care, presents a certain number of *cicindelidæ*, among which we find with surprise the *Megacephala*, a form believed till lately to be peculiar to the warmest parts of Africa, which bare, we must remember, a considerable resemblance with the central regions of Australia, to which it is confined on this continent.

An allied genus, *Tetracha*, had also been long ago signalised by Hope from specimens brought from Port Essington. Since then other species have been found by Messrs. Masters and Thouzet, at Port Denison and Rockhampton, and also by Mr. Waterhouse, in the central parts of Australia, during his expedition across the continent, under Mr. Stuart.

Distipsidera is common in most parts of Queensland, the species being very nearly allied to those which inhabit in great numbers New Caledonia and the neighbouring islands.

Cicindela proper is also numerously represented on the eastern coast. *Upsilon* being very common in most parts of New South Wales; but all at once going south, this family of insects disappears, and never to my knowledge has a single specimen been found in Victoria, Tasmania, South Australia, nor in the southern parts of Western Australia.

The mild and even warm temperature of most of these regions affords no possible explanation to this singular phenomena, which has nothing to do with the isothermal lines, as the insects I mention are very common all over New Zealand, even in its most southern parts.

The genus *Megacephala*, represented till this day by one single species, described lately by Mr. MacLeay, junr., in the "Transactions of the Entomological Society of Sydney," under the specific name of *Cilindrica*, was first brought by Major Mitchell from Peak Downs, in the western part of Queensland. Since, Mr. Howitt met with it on Cooper's Creek, during his expedition to relieve Burke and Wills. Of the three specimens he brought back, and which are in the possession of his uncle, Dr. G. Howitt, a most learned entomologist, who has a better knowledge of Australian insects than any other living man, one is remarkable by its fine blue colour.

Lately, Mr. Hubert, who was sent by Dr. Howitt and myself in the interior, found also one specimen of this beautiful beetle on the Paroo River; it forms part of my own collection.

I have here to describe a second Australian species of *Megacephala*, also found by Mr. Howitt on Cooper's Creek; two specimens were taken, one is in Dr. Howitt's collection and the other in mine, through the generosity of the latter gentleman, to whom I dedicate it.

Megacephala Howitti: length 7', breadth 3'; of a rather dark metallic green, with the buccal parts, the base of antennæ, legs and last two segments of the abdomen of a light yellowish brown; the head is broad and transverse, with two impressions between the eyes; thorax almost square, with a longitudinal sulcate in the middle and a transverse one in front and backwards; the elytra are short, of an oval form, covered with deep punctures on their anterior part, and extending to a little more than the third of their length; they are obsolete on the remaining portion of the surface. The inferior parts of the body are green, with the middle of the abdomen black; this last colour

extends over the whole of the latter segments, with the exception of the two last, which are of a brown, becoming yellow on the ultimate. The antennæ are obscure after the fifth article. Mr. Howitt stated that he had taken this *Megacephala* under dry cow dung.

Of *Tetracha*, the only species I have to mention is the one found by Mr. Waterhouse in the centre of the Continent (at 700 miles N.W. of Adelaide), and is, I believe, hitherto undescribed, although that gentlemen has sent a considerable number to England. I propose to give it the name of its discoverer.

Tetracha Waterhousii: length 10', breadth 4'; of a light green metallic colour, with the buccal parts, the antennæ, legs and ultimate segments of the abdomen of a yellowish brown; head broad with two sulcated impressions between the eyes; thorax a little broader in front than towards its posterior part, with a sulcated and longitudinal line in the middle, and a transverse one at each end; elytra of a green colour, becoming bright and gilt near the suture; their posterior part is covered by a large apical yellow spot, terminating forward by an arched line; the surface of the green part of the elytra is very rugose, and presents a longitudinal line of deep punctures following the suture at a short distance.

It is with much pleasure I dedicate this handsome insect to F. G. Waterhouse, Esq., of Adelaide, whose labours have thrown so much light on the zoology of Southern Australia.

This species carries up to five the number of the Australian species of *Tetracha*, which are the following:—

1. *T. Australasiæ*.—Hope, "Trans. Ent. Soc. of London." Vol. IV.

2. *T. Humeralis*.—MacLeay, junr., "Trans. Ent. Soc. of Sydney," Part I. From Port Denison and Rockhampton.

3. *T. Scapularis*.—MacLeay, junr., *id.* From Port Denison.

4. *T. Crucigera*.—MacLeay, junr., *id.* From Port Denison and Rockhampton.

Mr. MacLeay, junr., says that these three sorts are probably nocturnal. I quite agree with him, having always found that such is the case with all the brown coloured species of the genus (on which Baron Chaudoir had formed his genus *Phæoxanthus*), of which I have taken numerous specimens of almost all the sorts known, during the night, on the banks of the Amazonas, Tocantins, Arra-

guaya, and other rivers of the interior parts of South America; but I doubt very much *T. Waterhousii* having the same habits; the brilliant green and metallic sorts being diurnal, and fond of running and flying about under the rays of a tropical sun. I have lately seen, in a collection made on the western coast, specimens of a *Tetracha*, which seem identical with *Humeralis*.

Distipsidera is only represented in my collection of Australian insects by five species, of which four are known. *Undulata*, from the Clarence River, Brisbane and Rockhampton. *Cursitans*, MacLeay, junr., equally from the Clarence and from Brisbane. *Volitans*, MacLeay, from Port Denison, and *Grutii*: Pascoe, from Lizard Island, on the north east coast of Carpentaria. The fifth species appears to be undescribed, and I will mention it under the name given to it in Mr. Deyrolles's collection.

Distipsidera Strangei: length $6\frac{1}{2}'$, breadth $2'$; resembles very much *Cursitans*, but a little more slender; head and thorax of a darker tinge; the humeral white spot covering almost all the breadth of the elytra by its sinuations; the apical spot more transverse; the legs of a light brown; the anterior thighs without any obscure spot; those of the other two pairs, having a feeble black line on their inferior side; labrum of an obscure yellow; antennæ brown, with their articles from three to six black.

I do not know from what part of the Australian continent this insect was obtained.

Of *Cicindela*, I possess several sorts that I believe undescribed, without being able to certify the fact; Baron Chaudoir's catalogue of *Cicindelidæ* not having yet reached this colony. Such are the following:—

Cicindela Masteri: length $5'$, breadth $1\frac{3}{4}'$; brown, or dark green; labrum white; mandibulæ of the last colour, with their extremity of a dark green; antennæ of the same colour; thorax short; elytra with 1st, a white triangular spot near the middle of the margin; 2nd, a short line below, following the margin and often joining the first; and 3rd, a lunula at the apex; near the suture, and towards the two posterior thirds of the length is a spot also white, which sometimes unites with the triangular one. Inferior parts of the body of a dark blue, and covered with a white pubescence; legs copper colour, with the base of the thighs green; tarsi of the last colour. This little species is not rare on the Eastern Creek, in New South Wales.

Cicindela Wilcoxii: length 5', breadth 2'; nearly allied to the European sort *Circumdata*; of a copper colour, covered with a white pubescence; labrum of a yellowish white; external part of mandibulæ black; elytra with a broad white margin, which forms, 1st, a lunula on the humeral angle; 2nd, a ramified branch before the middle of the length of the elytra, directing itself toward the anterior part, then bending downward, and forming a long lunula near the suture; 3rd, a long spot, which is directed towards the former. The lower parts of the body are of a dark green, with the sides of the thorax pubescent; legs copper coloured. This *Cicindela* was sent to me from the Clarence River by Mr. Wilcox.

Cicindela Circumcincta: length $5\frac{1}{2}'$, breadth 2'.—This *Cicindela* has the cylindrical form of *Odontocheila*, and is of a dark copper colour; the labrum is narrow, sulcated, of a dirty white, and is terminated by three teeth, of which the strongest is situated in the middle; mandibulæ of a black colour; mentum with a very strong tooth; eyes large and prominent; thorax almost square in the female, narrow and cylindrical in the male; elytra with a narrow, marginal, whitish spot near the middle of the length, which extends downwards, as a narrow line along the margin, and sometimes unites with a narrow arched line which covers the apex. Inferior parts of the body green, with a white pubescence; legs copper coloured, with the tibiæ sometimes purple.

I received my first specimens of this species from Mr. Thouzet, of Rockhampton, to which I owe so many insects of the north east part of Australia. Since then numerous others have been sent to me from Brisbane, the Clarence River, and Eastern Creek. It appears to be very common in Queensland; and it is also found in New Caledonia. This singular insect is very remarkable on account of the difference of form the thorax presents in the two sexes. I have described this insect under the name it bears in Mr. Deyrolles's collection, and under which he has sent it to his correspondents.

The only other sorts of *Cicindela* of the Australian continent I possess in my collection, is the common *Upsilon*, and the *Nigrita*, MacLeay, junr., from Port Denison.

I have now to say a few words on the *Cicindelidæ* of New Zealand. Numerous specimens have been received by me from Dunedin of the *Laticincta* White, *Turberculata* Fab., and

Parryi White. Some specimens of the two last have been sent to me by Mr. Edwards, from Auckland, but those of *Tuberculata* are darker, and have the elytra more densely punctured than those of the Southern Island.

The *Parryi* of the northern part is also different from the specimens of Dunedin; they are smaller, their colour is more green; the spots of the elytra are more confused, and on each elytra there are two dark notches bordering the middle ramified line. The entire insect appears also more deeply punctured.

I am not certain if this insect ought to be considered as belonging to a different species, or as forming a local variety, but I incline towards the last opinion.

From Dunedin, I also received several specimens of a new sort.

Cicindela Dunedensis: length 4', breadth $1\frac{1}{2}'$.—This small sort is of a light brown; the labrum and base of the mandibulæ are white; the elytra are covered with punctures of a green copper colour; a sinuated line of large punctures follows the suture; a rather broad marginal white band extends along the exterior margin, and sends forth a short lunula behind the axillary angle, an oblique band that almost reaches the suture and an apical lunula. The inferior parts of the body and legs are of a bright copper colour, and the abdomen is black. This insect is allied to *Parryi*, but is much smaller, more narrow, and has a general green appearance; it is also easily distinguished by the sinuous and arched form of the elytral line of big punctures, which is straight in *Parryi*.

Among other interesting specimens sent to me by W. L. Travers, Esq., of Christchurch, are the larvæ of the *Tuberculata* and *Parryi*. The first has a general elongated form, the head not being much broader than the body; the whole animal is formed of thirteen segments, including the head, which is pretty large and rather excavated in its middle; the parts of the mouth are well formed; on each side of the head are two eyes, of which the posterior are the largest; the antennæ are very short and formed of four articles, of which the last is very small; the mandibulæ are strong and curved, with an acute tooth near their base; the prothorax is broad, transversal, semicircular, with its anterior margin protruding in its middle, in form of a point; the sides are rounded and margined; the posterior margin semicircular. The surface of this thorax is unequal, and presents a

longitudinal carina on the middle. The abdominal segments are soft; the eighth is gibbous, and surmounted by two crooked appendices; the legs are rather short. This larva is entirely yellow, with the head and prothorax of a dark green; the mandibulæ of an obscure brown. It is easy to see how very much this larva resembles those of the two European sorts that have been described.

The second larva I have to mention belongs, as I already stated, to *C. Parryi*; it is of a very different form from the other, the head and prothorax being of a most extraordinary size; at least four times as broad as the body, and nearly as long. The first is broad, transversal, with two eyes nearly equal on each side; the labrum is rounded in front; the mandibulæ shorter than in the preceding sort; the antennæ of the same form; the prothorax is semicircular, with its anterior angles prolonged; the anterior margin is also advanced in its middle; the two other thoracic segments and those belonging to the abdomen are narrow, soft, and hirsute; the eighth is slightly gibbous, but without appendices; the legs are robust and proportionately pretty long. The insect is of a dark yellow; the head of a metallic green, as is also the prothorax; but the last is covered with a short white and snowy pubescence.

In a following paper I will describe a large number of new sorts of Australian insects, belonging to the family of *Carabidæ*. I feel it my duty to express here my thanks to all those who during my three years' residence in this colony, have so liberally granted me their co-operation in the formation of my very considerable collection of Australian beetles, and in particular to our great botanist, Dr. Mueller, who most liberally has put me in correspondence with the greatest part of those who devote themselves to the study of the zoology of the Southern Hemisphere.

Since the above was written, my knowledge of Australian *Cicindelidæ* has received the following additions:—

Two new sorts of tetracha have been sent me by the Rev. Mr. Bostock, of Western Australia. They both came from Nickol Bay.

Tetracha Bostockii: length, 6', breadth, 2'; of a fine metallic green; elytra black, with a yellow margin which projects, towards a third of its length, a strong and oblique ramification extending towards the suture. The surface of

the elytra is smooth on the two posterior third parts, the anterior being covered with very strong and deep punctures; parts of the mouth, antennæ, last segment of the abdomen, and legs of a dark yellow, the four first articles of the antennæ spotted with black; end of the mandibulæ of the last colour. This insect very much resembles *Humeralis*, but is easily distinguished by its smaller size, the thorax, of which the anterior angles are much more rounded, the granulation of the elytra, &c.

Tetracha Hopei: length, 9', breadth, $3\frac{1}{2}'$; of a fine metallic green; thorax broader in front than at its posterior part, sinuous laterally, with the anterior angles rather protuberant; it presents a transversal margin in front and another towards its posterior part, and a longitudinal sulcate in the middle; the elytra have a yellow margin that does not extend to the humeral angle, and which gradually increases in breadth in its posterior part; the whole surface is densely punctured, but more particularly towards the base; a line of deep punctures extends near the suture, but forms a curve towards the extremity; below, the body is green, with the middle of the abdomen black, and its extremity brown; parts of the mouth, antennæ, and legs of a yellow brown; extremity of the mandibulæ black; antennæ, very long. This species is dedicated to my lamented and old friend, the Rev. Mr. Hope.

Of *Cicindela* I also received a new and most remarkable species from Western Australia.

Cicindela MacLeayi: length, 6', breadth, 2'; of a gilt copper colour, head broad, eyes prominent, thorax almost square, rounded laterally with a transverse sulcate near the anterior and posterior margins, and a longitudinal one in the middle; elytra of a beautiful purple, with three longitudinal bands of a whitish yellow, one marginal, another sutural, and the third conral, which does not entirely reach the margin at its posterior part; inferior parts of the body of a beautiful irradiated green; anus, brown; antennæ and legs of a red copper colour, variegated with green; thighs covered with a whitish pubescence; labrum white, transverse, with its anterior margin sinuous.

This beautiful insect has an Indian appearance. I have dedicated it to Mr. McLeay, junr., who has already done so much for Australian Entomology.

The same magnificent collection of West Australian insects I obtained from the Rev. Mr. Bostock contains a

specimen of *Cicindela* which only differs from *Circumcincta* by its fine light green colour; I suppose it to be a local variety.

I will conclude with the following remark. The *Tetracha Australasiæ* of Hope is perhaps the same as the *Crucigera* of McLeay, junr., but it is certainly different from the insect figured under the name of *Australasiæ* by White, in the expedition of the *Beagle* (pl. 1, fig. 1). The latter belongs, I think, without doubt to the *Humeralis* of McLeay.

With the addition of the sort lately described by Mr. McLeay in the fifth number of the "Transactions of the Entomological Society of New South Wales," the number of Australian *Tetracha* is actually eight, and will be certainly soon very much increased.

ART. VI.—*Characteristic of an undescribed Senecio, from South Africa.* By FERD. MUELLER, M.D., F.R.S.

In a communication very recently received from Peter MacOwan, Esq., principal of Shaw College, of Grahamstown, the writer of this note has been desired to give an opinion on the specific validity of a new species of *Senecio*, discovered not long ago by that learned and ardent investigator of South African plants, in the vicinity of Algoa Bay. I entered on the examination with all the more pleasure, not only because the material for comparison of plants from extratropical Africa is extremely rich in the Phytologic Museum of Melbourne, but because I was also anxious to promote in any way within my power the researches of a gentleman who exercises already important bearings on the elucidation of the plants of the Capeland, and who, moreover, has commenced to add largely to the South African collections already in possession of my institution, from the german naturalist and travellers, Ecklon, Zeyher, Drege, Pappe, and Gueinzus.

The genus *Senecio* is not merely more widely distributed over the globe than any other existing, from the polar to the equinoctial regions of both hemispheres (though almost absent in North Australia), but it embraces also more species than any other, nearly a thousand being on record, some however but ill defined. The genus almost as rich in species, and almost as extensively diffused is *Solanum*, and then seemingly follow *Panicum*, *Carca*, and *Euphorbia*